



B75MA-E31 series

MS-7808 (v1.x) Mainboard

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REVISION HISTORY

Revision	Revision History	Date
V1.0	First release for PCB 1.X	2013/ 03

SAFETY INSTRUCTIONS

- Always read the safety instructions carefully.
- Keep this User Manual for future reference.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- The openings on the enclosure are for air convection hence protects the equipment from overheating. Do not cover the openings.
- Make sure the voltage of the power source is at 110/220V before connecting.
- Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
- Always Unplug the Power Cord before inserting any add-on card or module.
- All cautions and warnings on the equipment should be noted.
- Never pour any liquid into the opening that can cause damage or cause electrical shock.
- If any of the following situations arises, get the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well or you can not get it work according to User Manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious sign of breakage.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60°C (140°F), IT MAY DAMAGE THE EQUIPMENT.

TECHNICAL SUPPORT

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.



Visit the MSI website for technical guide, BIOS updates, driver updates, and other information:
<http://www.msi.com/service/download>



Contact our technical staff at:
<http://support.msi.com>

FCC-B RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules.



These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below.

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/ television technician for help.

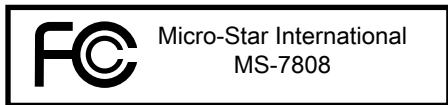
Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

BATTERY INFORMATION

European Union:



Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste. Please use the public collection system to return, recycle, or treat them in compliance with the local regulations.

Taiwan:



廢電池請回收

For better environmental protection, waste batteries should be collected separately for recycling or special disposal.

California, USA:

The button cell battery may contain perchlorate material and requires special handling when recycled or disposed of in California. For further information please visit: <http://www.dtsc.ca.gov/hazardouswaste/perchlorate/>

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

CHEMICAL SUBSTANCES INFORMATION

In compliance with chemical substances regulations, such as the EU REACH Regulation (Regulation EC No. 1907/2006 of the European Parliament and the Council), MSI provides the information of chemical substances in products at:

http://www.msi.com/html/popup/csr/evmtptrtt_pcm.html

BSMI_EMI 聲明

警告使用者

這是甲類的資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

WEEE STATEMENT

ENGLISH

To protect the global environment and as an environmentalist, MSI must remind you that...

Under the European Union ("EU") Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, which takes effect on August 13, 2005, products of "electrical and electronic equipment" cannot be discarded as municipal wastes anymore, and manufacturers of covered electronic equipment will be obligated to take back such products at the end of their useful life. MSI will comply with the product take back requirements at the end of life of MSI-branded products that are sold into the EU. You can return these products to local collection points.



DEUTSCH

Hinweis von MSI zur Erhaltung und Schutz unserer Umwelt

Gemäß der Richtlinie 2002/96/EG über Elektro- und Elektronik-Altgeräte dürfen Elektro- und Elektronik-Altgeräte nicht mehr als kommunale Abfälle entsorgt werden. MSI hat europaweit verschiedene Sammel- und Recyclingunternehmen beauftrag, die in die Europäische Union in Verkehr gebrachten Produkte, am Ende seines Lebenszyklus zurückzunehmen. Bitte entsorgen Sie dieses Produkt zum gegebenen Zeitpunkt ausschliesslich an einer lokalen Altgerätesammelstelle in Ihrer Nähe.

FRANÇAIS

En tant qu'écologiste et afin de protéger l'environnement, MSI tient à rappeler ceci...

Au sujet de la directive européenne (EU) relative aux déchets des équipements électriques et électroniques, directive 2002/96/EC, prenant effet le 13 août 2005, que les produits électriques et électroniques ne peuvent être déposés dans les décharges ou tout simplement mis à la poubelle. Les fabricants de ces équipements seront obligés de récupérer certains produits en fin de vie. MSI prendra en compte cette exigence relative au retour des produits en fin de vie au sein de la communauté européenne. Par conséquent vous pouvez retourner localement ces matériels dans les points de collecte.

РУССКИЙ

Компания MSI предпринимает активные действия по защите окружающей среды, поэтому напоминаем вам, что....

В соответствии с директивой Европейского Союза (ЕС) по предотвращению загрязнения окружающей среды использованным электрическим и электронным оборудованием (директива WEEE 2002/96/EC), вступающей в силу 13 августа 2005 года, изделия, относящиеся к электрическому и электронному оборудованию, не могут рассматриваться как бытовой мусор, поэтому производители вышеперечисленного электронного оборудования обязаны принимать его для переработки по окончании срока службы. MSI обязуется соблюдать требование по приему продукции, проданной под маркой MSI на территории ЕС, в переработку по окончании срока службы. Вы можете вернуть эти изделия в специализированные пункты приема.

ESPAÑOL

MSI como empresa comprometida con la protección del medio ambiente, recomienda:

Bajo la directiva 2002/96/EC de la Unión Europea en materia de desechos y/o equipos electrónicos, con fecha de rigor desde el 13 de agosto de 2005, los productos clasificados como "eléctricos y equipos electrónicos" no pueden ser depositados en los contenedores habituales de su municipio, los fabricantes de equipos electrónicos, están obligados a hacerse cargo de dichos productos al término de su período de vida. MSI estará comprometido con los términos de recogida de sus productos vendidos en la Unión Europea al final de su periodo de vida. Usted debe depositar estos productos en el punto limpio establecido por el ayuntamiento de su localidad o entregar a una empresa autorizada para la recogida de estos residuos.

NEDERLANDS

Om het milieu te beschermen, wil MSI u eraan herinneren dat....

De richtlijn van de Europese Unie (EU) met betrekking tot Vervuiling van Elektrische en Electronische producten (2002/96/EC), die op 13 Augustus 2005 in zal gaan kunnen niet meer beschouwd worden als vervuiling. Fabrikanten van dit soort producten worden verplicht om producten retour te nemen aan het eind van hun levenscyclus. MSI zal overeenkomstig de richtlijn handelen voor de producten die de merknaam MSI dragen en verkocht zijn in de EU. Deze goederen kunnen geretourneerd worden op lokale inzamelingspunten.

SRPSKI

Da bi zaštitili prirodnu sredinu, i kao preduzeće koje vodi računa o okolini i prirodnoj sredini, MSI mora da vas podesti da...

Po Direktivi Evropske unije ("EU") o odbačenju elektonskoj i električnoj opremi, Direktiva 2002/96/EC, koja stupa na snagu od 13. Avgusta 2005, proizvodi koji spadaju pod "elektonsku i električnu opremu" ne mogu više biti odbačeni kao običan otpad i proizvođači ove opreme biće prinuđeni da uzmu natrag ove proizvode na kraju njihovog uobičajenog veka trajanja. MSI će poštovati zahtev o preuzimanju ovakvih proizvoda kojima je istekao vek trajanja, koji imaju MSI oznaku i koji su prodati u EU. Ove proizvode možete vratiti na lokalnim mestima za prikupljanje.

POLSKI

Aby chronić nasze środowisko naturalne oraz jako firma dbająca o ekologię, MSI przypomina, że...

Zgodnie z Dyrektywą Unii Europejskiej ("UE") dotyczącą odpadów produktów elektrycznych i elektronicznych (Dyrektywa 2002/96/EC), która wchodzi w życie 13 sierpnia 2005, tzw. "produkty oraz wyposażenie elektryczne i elektroniczne" nie mogą być traktowane jako śmieci komunalne, tak więc producenci tych produktów będą zobowiązani do odbierania ich w momencie gdy produkt jest wycofywany z użycia. MSI wypełni wymagania UE, przyjmując produkty (sprzedawane na terenie Unii Europejskiej) wycofywane z użycia. Produkty MSI będzie można zwracać w wyznaczonych punktach zbiorczych.

TÜRKÇE

Çevreci özelliğiyle bilinen MSI dünyada çevreyi korumak için hatırlatır: Avrupa Birliği (AB) Kararnamesi Elektrik ve Elektronik Malzeme Atığı, 2002/96/EC Kararnamesi altında 13 Ağustos 2005 tarihinden itibaren geçerli olmak üzere, elektrikli ve elektronik malzemeler diğer atıklar gibi çöpe atılamayacak ve bu elektronik cihazların üreticileri, cihazların kullanım süreleri bittikten sonra ürünleri geri toplamakla yükümlü olacaktır. Avrupa Birliği'ne satılan MSI markalı ürünlerin kullanım süreleri bittiğinde MSI ürünlerin geri alınması isteği ile işbirliği içerisinde olacaktır. Ürünlerinizi yerel toplama noktalarına bırakabilirsiniz.

ČESKY

Záleží nám na ochraně životního prostředí - společnost MSI upozorňuje... Podle směrnice Evropské unie ("EU") o likvidaci elektrických a elektronických výrobků 2002/96/EC platné od 13. srpna 2005 je zakázáno likvidovat "elektrické a elektronické výrobky" v běžném komunálním odpadu a výrobci elektronických výrobků, na které se tato směrnice vztahuje, budou povinni odebírat takové výrobky zpět po skončení jejich životnosti. Společnost MSI splní požadavky na odebírání výrobků značky MSI, prodávaných v zemích EU, po skončení jejich životnosti. Tyto výrobky můžete odevzdat v místních sběrnách.

MAGYAR

Annak érdekében, hogy környezetünket megvédjük, illetve környezetvédként fellépve az MSI emlékezteti Önt, hogy ...

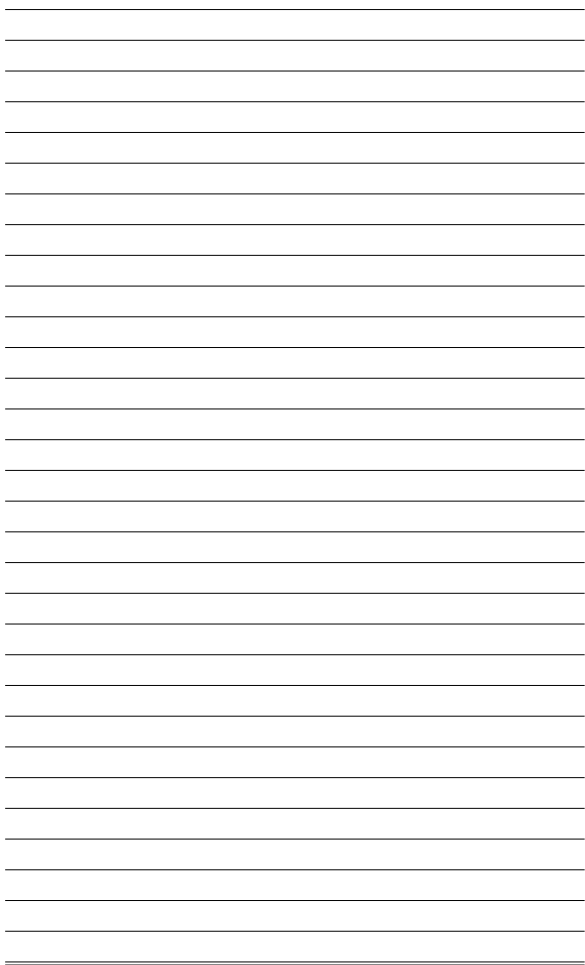
Az Európai Unió („EU”) 2005. augusztus 13-án hatályba lépő, az elektromos és elektronikus berendezések hulladékairól szóló 2002/96/EK irányelve szerint az elektromos és elektronikus berendezések többé nem kezelhetők lakossági hulladékként, és az ilyen elektronikus berendezések gyártói kötelessé válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termék visszavétellel kapcsolatos követelményeket az MSI márkanév alatt az EU-n belül értékesített termékek esetében, azok élettartamának végén. Az ilyen termékeket a legközelebbi gyűjtőhelyre viheti.

ITALIANO

Per proteggere l'ambiente, MSI, da sempre amica della natura, ti ricorda che.... In base alla Direttiva dell'Unione Europea (EU) sullo Smaltimento dei Materiali Elettrici ed Elettronici, Direttiva 2002/96/EC in vigore dal 13 Agosto 2005, prodotti appartenenti alla categoria dei Materiali Elettrici ed Elettronici non possono più essere eliminati come rifiuti municipali: i produttori di detti materiali saranno obbligati a ritirare ogni prodotto alla fine del suo ciclo di vita. MSI si adegnerà a tale Direttiva ritirando tutti i prodotti marchiati MSI che sono stati venduti all'interno dell'Unione Europea alla fine del loro ciclo di vita. È possibile portare i prodotti nel più vicino punto di raccolta.

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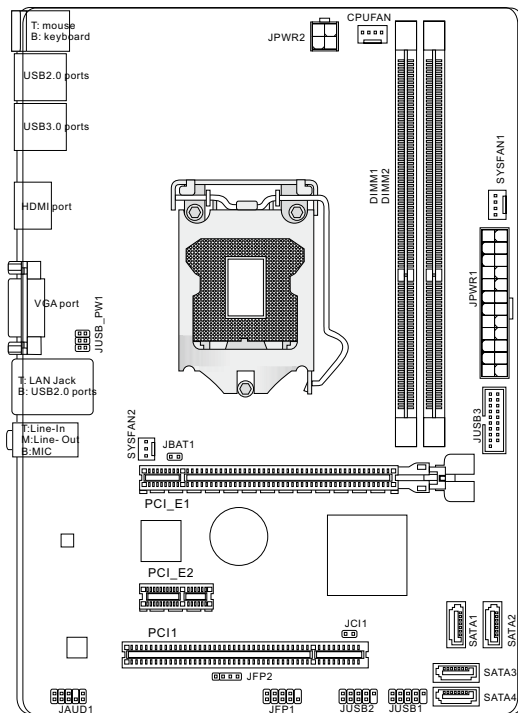
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GETTING START

Thank you for choosing the B75MA-E31 series (MS-7808 v1.x) Micro-ATX mainboard. These series are designed based on **Intel® B75** chipset for optimal system efficiency. Designed to fit the advanced **Intel® LGA1155** processor, these series deliver a high performance and professional desktop platform solution.

Layout



SPECIFICATIONS

Processor Support

- Support 3rd Gen Intel® Core™ i7 / Core™ i5 / Core™ i3 / Pentium® / Celeron® processors for LGA 1155 socket

Chipset

- Intel® B75 chipset

Memory Support

- 2x DIMMs support for DDR3-1066/1333/1600* MHz, up to 16GB
(*DDR3-1600 MHz is only supported with Intel® Ivy Bridge processors)
- Supports Dual-Channel mode

LAN

- Supports LAN 10/ 100/ 1000 by Realtek® 8111E

Audio

- Chip integrated by Realtek® ALC887
- Supports 8-channels audio out
- Compliant with Azalia 1.0 Spec

SATA

- 1x SATA 6Gb/s port (SATA1) by Intel® B75
- 3x SATA 3Gb/s ports (SATA2~4) by Intel® B75

Connectors

- Back panel
 - 1x PS/2 mouse port
 - 1x PS/2 keyboard port
 - 4x USB 2.0 ports
 - 2x USB 3.0 ports
 - 1x HDMI port*, supporting a maximum resolution of 1920x1200
 - 1x VGA port*, supporting a maximum resolution of 2048x1536
 - 1x LAN jack
 - 3x flexible audio jacks**
*(The HDMI & VGA ports only work with Integrated Graphics Processor.)
**(To reach the 8-channel sound effect, the 7th and 8th channels must be outputted from front panel.)
- On-Board Connectors
 - 2x USB 2.0 connectors
 - 1x USB 3.0 connector
 - 1x Front Panel Audio connector
 - 1x Chassis Intrusion connector

Slots

- 1x PCIe 3.0 x16 slot
- 1x PCIe 2.0 x1 slot
- 1x PCI slot

Form Factor

- Micro-ATX (24.4 cm X 17.3 cm)

Mounting Screw Hole

- 6 mounting holes



For the latest information about CPU, please visit

<http://www.msi.com/service/cpu-support>



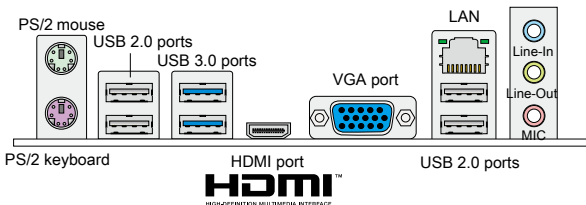
For more information on compatible components, please visit

<http://www.msi.com/service/test-report>

If you need to purchase accessories and request the part numbers, you could search the product web page and find details on our web address below
<http://www.msi.com/index.php>

REAR PANEL

The rear panel provides the following connectors:



IMPORTANT

- * To reach the 8-channel sound effect, the 7th and 8th channels must be output from front panel.
- * The HDMI & VGA ports only work with Integrated Graphics Processor.

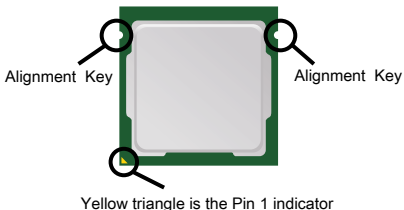
HARDWARE SETUP

CPU & Cooler Installation for LGA1155

When installing a CPU, always remember to install a CPU cooler. A CPU cooler is necessary to prevent overheating and maintain system stability. Follow the steps below to ensure correct CPU and CPU cooler installation. Wrong installation can damage both the CPU and the mainboard.

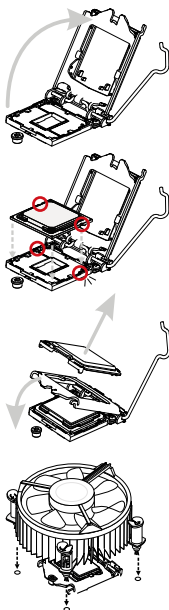
Introduction to the LGA 1155 CPU

The surface of the LGA 1155 CPU has two alignment keys and a yellow triangle to assist in correctly lining up the CPU for mainboard placement. The yellow triangle is the Pin 1 indicator.



Follow the steps below to install the CPU & cooler correctly.

1. Unhook and lift the loading lever to the fully open position.
2. The loading plate should automatically lift up as the loading lever is pushed to the fully open position. Do not touch any of the CPU socket pins.
3. Line up the CPU to fit the CPU socket. Be sure to hold the CPU by the base with the metal contacts facing downward. The alignment keys on the CPU will line up with the edges of the CPU socket to ensure a correct fit.
4. Close the loading plate and remove the plastic protective cap.
5. Inspect the CPU to check if it is properly seated in the socket. Press the loading lever down and lock it under the retention tab.
6. Evenly spread a thin layer of thermal paste (or thermal tape) on the top of the CPU. This will help in heat dissipation and prevent CPU overheating.
7. Locate the CPU fan connector on the mainboard.
8. Place the heatsink on the mainboard with the fan's wires facing towards the fan connector and the hooks matching the holes on the mainboard.
9. Push down on the heatsink until the four clips get wedged into the holes on the mainboard. Press the four hooks down to fasten the cooler. As each hook locks into position a click should be heard.
10. Inspect the mainboard to ensure that the clip-ends have been properly locked in place.
11. Finally, attach the CPU fan cable to the CPU fan connector on the mainboard.

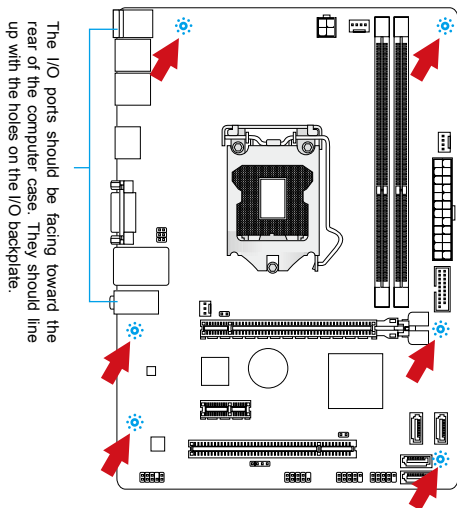


IMPORTANT

- * Do not touch the CPU socket pins.
- * Confirm that the CPU cooler has formed a tight seal with the CPU before booting your system.
- * Whenever the CPU is not installed, always protect the CPU socket pins by covering the socket with the plastic cap.
- * Please refer to the documentation in the CPU cooler package for more details about CPU cooler installation.

Mounting Screw Holes

When installing the mainboard, first install the necessary mounting stands required for a mainboard on the mounting plate in your computer case. If there is an I/O back plate that came with the computer case, please replace it with the I/O backplate that came with the mainboard package. The I/O backplate should snap easily into the computer case without the need for any screws. Align the mounting plate's mounting stands with the screw holes on the mainboard and secure the mainboard with the screws provided with your computer case. The locations of the screw holes on the mainboard are shown below. For more information, please refer to the manual that came with the computer case.

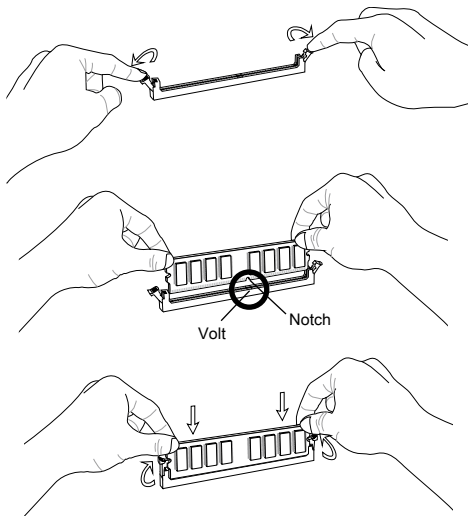


IMPORTANT

- * Install the mainboard on a flat surface free from unnecessary debris.
- * To prevent damage to the mainboard, any contact between the mainboard circuitry and the computer case, except for the mounting stands, is prohibited.
- * Please make sure there are no loose metal components on the mainboard or within the computer case that may cause a short circuit of the mainboard.

Installing Memory Modules

1. Unlock the DIMM slot by pushing the mounting clips to the side. Vertically insert the memory module into the DIMM slot. The memory module has an off-center notch on the bottom that will only allow it to fit one way into the DIMM slot.
2. Push the memory module deep into the DIMM slot. The plastic clips at each side of the DIMM slot will automatically close when the memory module is properly seat and an audible click should be heard.
3. Manually check if the memory module has been locked in place by the DIMM slot's side clips.

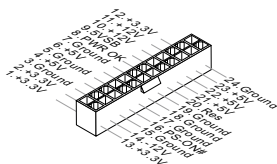


IMPORTANT

- * To ensure system stability, memory modules must be of the same type and density in Dual-Channel mode.
- * Due to the hardware limitation, you should follow the installing procedures: first memory modules, then graphics card. While uninstalling, remove graphics card first if necessary.

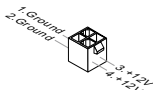
JPWR1: ATX 24-Pin Power Connector

This connector allows you to connect an ATX 24-pin power supply. To connect the ATX 24-pin power supply, align the power supply cable with the connector and firmly press the cable into the connector. If done correctly, the clip on the power cable should be hooked on the mainboard's power connector.



JPWR2: ATX 4-Pin Power Connector

This connector provides 12V power to the CPU.



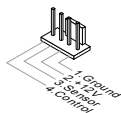
IMPORTANT

Make sure that all the power cables are securely connected to a proper ATX power supply to ensure stable operation of the mainboard.

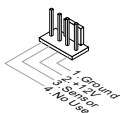
CPUFAN1, SYSFAN1, SYSFAN2: Fan Power Connectors

The fan power connectors support system cooling fans with $\times 12V$. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with a speed sensor to take advantage of the CPU fan control. Remember to connect all system fans. Some system fans may not connect to the mainboard and will instead connect to the power supply directly. A system fan can be plugged into any available system fan connector.

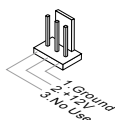
CPUFAN1



SYSFAN1

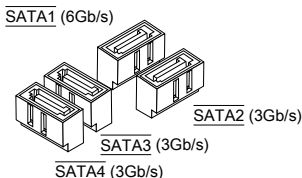


SYSFAN2



SATA1~4: SATA Connector

This connector is a high-speed Serial ATA interface port. Each connector can connect to one Serial ATA device. Serial ATA devices include disk drives (HD), solid state drives (SSD), and optical drives (CD/ DVD/ Blu-Ray).

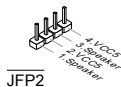
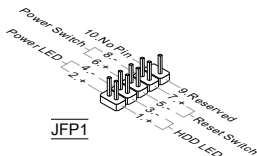


IMPORTANT

- * Please do not fold the SATA cable at a 90-degree angle. Data loss may result during transmission otherwise.
- * SATA cables have identical plugs on either sides of the cable. However, it is recommended that the flat connector be connected to the mainboard for space saving purposes.

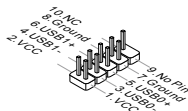
JFP1, JFP2: Front Panel Connectors

These connectors are for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



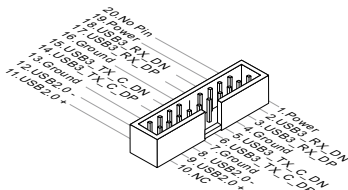
JUSB1, JUSB2: USB 2.0 Expansion Connectors

This connector is designed for connecting high-speed USB peripherals such as USB HD s, digital cameras, MP3 players, printers, modems, and many others.



JUSB3: USB 3.0 Expansion Connector

The USB 3.0 port is backwards compatible with USB 2.0 devices. It supports data transfer rates up to 5Gbits/s (SuperSpeed).



IMPORTANT

- * Note that the VCC and GND pins must be connected correctly to avoid possible damage.
- * To use a USB 3.0 device, you must connect the device to a USB 3.0 port through an optional USB 3.0 compliant cable.

JUSB_PW1: USB power Jumper

This jumper allows you to enable/ disable the "Wakeup from S3/S4/S5 by USB and PS/2 device" function.

JUSB_PW1



◀1



Disabled



◀1

Enabled

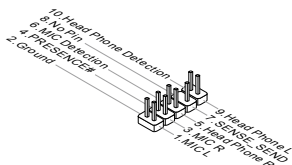


IMPORTANT

If you set the jumper to Enabled, the power supply must be able to provide +5VSB and at least 2A currents.

JAUD1 : Front Panel Audio Connector

This connector allows you to connect the front audio panel located on your computer case. This connector is compliant with the Intel® Front Panel I/O Connectivity Design Guide.



JCI1: Chassis Intrusion Connector

This connector connects to the chassis intrusion switch cable. If the computer case is opened, the chassis intrusion mechanism will be activated. The system will record this intrusion and a warning message will flash on screen. To clear the warning, you must enter the BIOS utility and clear the record.



JBAT1: Clear CMOS Jumper

There is CMOS RAM onboard that is external powered from a battery located on the mainboard to save system configuration data. With the CMOS RAM, the system can automatically boot into the operating system (OS) every time it is turned on. If you want to clear the system configuration, set the jumper to clear the CMOS RAM.



Keep Data



Clear Data

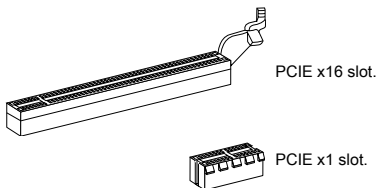


IMPORTANT

You can clear the CMOS RAM by shorting this jumper while the system is off. Afterwards, open the jumper. Do not clear the CMOS RAM while the system is on because it will damage the mainboard.

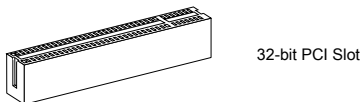
PCIe Slot

The PCIe slot supports the PCIe interface expansion card.



PCI Slot

The PCI slot supports LAN card, SCSI card, USB card, and other add-on cards that comply with PCI specifications.



PCI Interrupt Request Routing

IRQ, or interrupt request lines, are hardware lines over which devices can send interrupt requests to the processor. The PCI IRQ pins are typically connected to the PCI bus pins as followed:

Order Slot	1	2	3	4
PCI 1	INT E#	INT F#	INT G#	INT H#

IMPORTANT

When adding or removing expansion cards, always turn off the power supply and unplug the power supply power cable from the power outlet. Read the expansion card's documentation to check for any necessary additional hardware or software changes.

BIOS SETUP

Entering

Power on the computer and the system will start the Power On Self Test (POST) process. When the message below appears on the screen, please key to enter CLICK BIOS II:

Press DEL key to enter Setup Menu, F11 to enter Boot Menu

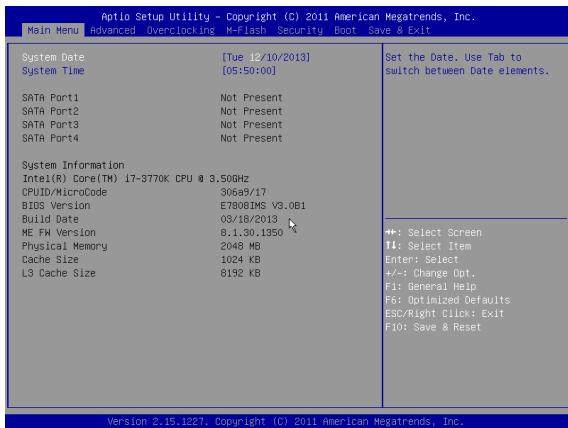
If the message disappears before you respond and you still need to enter setup, restart the system by turning the computer OFF then back ON or pressing the RE-SET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.



IMPORTANT

The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

Main Page



IMPORTANT

The pictures in this guide are for reference only and may vary from the product you purchased. Please refer to the actual screens of your system for detailed information.

Main Menu

Use this menu for basic system configurations, such as time, date etc.

Advanced

Use this menu to set up the items of special enhanced features.

Overclocking

Use this menu to specify the settings for DRAM timing and CPU features.

M-Flash

Use this menu to read/ flash the BIOS from storage drive (FAT/ FAT32 format only).

Security

Use this menu to set supervisor and user passwords.

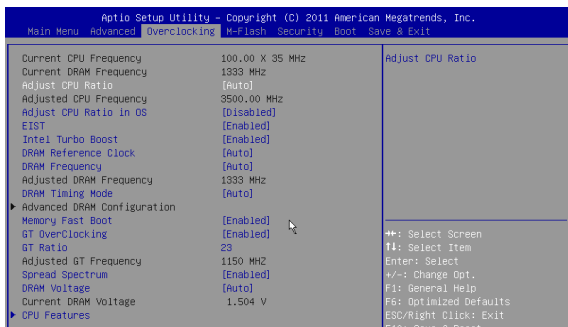
Boot

Use this menu to specify the priority of boot devices.

Save & Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

Overclocking



IMPORTANT

- * Overclocking your PC manually is only recommended for advanced users.
- * Overclocking is not guaranteed, and if done improperly, can void your warranty or severely damage your hardware.

Current CPU / DRAM Frequency

These items show the current clocks of CPU and Memory speed. Read-only.

Adjust CPU Ratio

Controls the multiplier that is used to determine internal clock speed of the processor. This feature can only be changed if the processor supports this function.

Adjusted CPU Frequency

It shows the adjusted CPU frequency. Read-only.

Adjust CPU Ratio in OS

Enable this item to allow CPU ratio changes in the OS by using Control Center.

EIST

Enhanced Intel SpeedStep technology allows you to set the performance level of the microprocessor whether the computer is running on battery or AC power. This field only appears with installed CPUs that support this technology.

Intel Turbo Boost

Enables or disables Intel Turbo Boost which automatically boosts CPU performance above rated specifications (when applications requests the highest performance state of the processor).

DRAM Reference Clock

This item allows you to specific the DRAM Reference Clock for CPU. Please note the overclocking behavior is not guaranteed.

DRAM Frequency

This item allows you to adjust the DRAM frequency. Please note the overclocking behavior is not guaranteed.

Adjusted DRAM Frequency

It shows the adjusted DRAM frequency. Read-only.

DRAM Timing Mode

Select whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to [Auto] enables DRAM timings and the following "Advanced DRAM Configuration" sub-menu to be determined by BIOS based on the configurations on the SPD. Selecting [Link] or [Unlink] allows users to configure the DRAM timings for each channel and the following related "Advanced DRAM Configuration" sub-menu manually.

Advanced DRAM Configuration

Press <Enter> to enter the sub-menu.

Command Rate

This setting controls the DRAM command rate.

tCL

Controls CAS latency which determines the timing delay (in clock cycles) of starting a read command after receiving data.

tRCD

Determines the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The less clock cycles, the faster the DRAM performance.

tRP

Controls number of cycles for RAS (row address strobe) to be allowed to pre-charge. If insufficient time is allowed for RAS to accumulate before DRAM refresh, the DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system.

tRAS

Determines the time RAS (row address strobe) takes to read from and write to memory cell.

tRFC

This setting determines the time RFC takes to read from and write to a memory cell.

tWR

Determines minimum time interval between end of write data burst and the start of a pre-charge command. Allows sense amplifiers to restore data to cell.

tWTR

Determines minimum time interval between the end of write data burst and the start of a column-read command; allows I/O gating to overdrive sense amplifiers before read command starts.

tRRD

Specifies the active-to-active delay of different banks.

tRTP

Time interval between a read and a precharge command.

tFAW

This item is used to set the tFAW (four activate window delay) timing.

tWCL

This item is used to set the tWCL (Write CAS Latency) timing.

tCKE

This item is used to set the Pulse Width for DRAM module.

tRTL

This item is used to set Round Trip Latency settings.

==Advanced Timing Configuration==**tRRDR**

Specifies the active-to-active delay of different ranks on the same DIMM.

tRRDD

Specifies the active-to-active delay of different DIMMs.

tWWDR

Specifies the write-to-write delay of different ranks on the same DIMM.

tWWDD

Specifies the write-to-write delay of different DIMMs.

tRWDRDD

Specifies the read-to-write delay of different ranks on the same/ different DIMM(s).

tWRDRDD

Specifies the write-to-read delay of different ranks on the same/ different DIMM(s).

tRWSR

Specifies the read-to-write delay of same rank.

tRRSR

Specifies the read commands delay of same rank.

tWWSR

Specifies the write commands delay of same rank.

CPU Features

Press <Enter> to enter the sub-menu.

Hyper-Threading

The processor uses Hyper-Threading technology to increase transaction rates and reduces end-user response times. The technology treats the two cores inside the processor as two logical processors that can execute instructions simultaneously. In this way, the system performance is highly improved. If you disable the function, the processor will use only one core to execute the instructions. Please disable this item if your operating system doesn't support HT Function, or unreliability and instability may occur.

Active Processor Cores

This item allows you to select the number of active processor cores.

Limit CUID Maximum

It is designed to limit the listed speed of the processor to older operating systems.

Execute Disable Bit

Can prevent certain classes of malicious "buffer overflow" attacks where worms can try to execute code to damage your system. It is recommended you keep this enabled always.

Intel Virtualization Tech

Enhances virtualization and allows the system to act as multiple virtual systems. See Intel's official website for more information.

Intel VT-D Tech

This item is used to enable/disable the Intel VT-D technology. For further information please refer to Intel's official website.

Power Technology

This item allows you to select the Intel Dynamic Power technology mode.

C1E Support

Enable system to reduce CPU power consumption while idle. Not all processors support Enhanced Halt state (C1E).

OverSpeed Protection

Monitors current CPU draw as well as power consumption; if it exceeds a certain level, the processor automatically reduces its clock speed. For overclocking, it is recommended this feature is disabled.

Intel C-State

C-state is a power management state that detects when the system is idle and lowers power consumption accordingly.

Package C State limit

This field allows you to select a C-state mode.

Long Duration Power Limit (W)

This field allows you to adjust the TDP power limit for the long duration.

Long Duration Maintained (S)

This field allows you to adjust the maintaining time for long duration power limit.

Short Duration Power Limit (W)

This field allows you to adjust the TDP power limit for the short duration.

Primary/ Secondary Plane Current Limit (A)

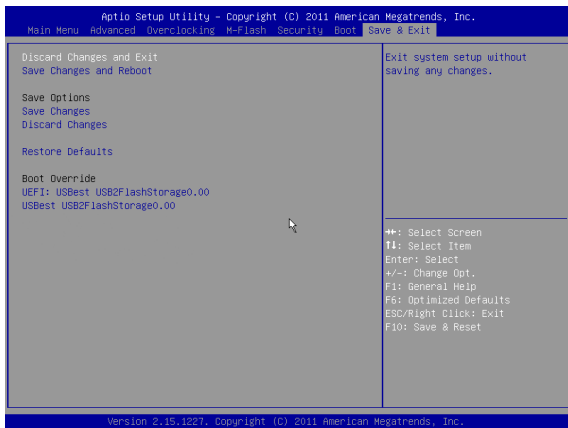
These fields allow you to adjust over current limit of CPU (primary plane)/ iGPU (secondary plane) for turbo ratio.

Primary/ Secondary Plane Turbo Power Limit (W)

These fields allow you to adjust the turbo power limit of CPU (primary plane)/ iGPU (secondary plane) for turbo boost.

Save & Exit

Go to SETTINGS and click Save & Exit item.



Discard Changes and Exit

Use this item to abandon all changes and exit setup.

Save Changes and Reboot

Use this item to save changes and reset the system.

== Save Options ==

Save Changes

Use this item to save changes.

Discard Changes

Use this item to abandon all changes.

Restore Defaults

Use this item to load the optimized default values set by the BIOS vendor.

== Boot Override ==

The installed storage devices will appear on this menu, you can select one of them be a boot device.

UEFI

Use this item to enter the UEFI Shell.

INSTALL WINDOWS XP NOTES

This section describes how to install Windows XP with IDE mode.

Installing Windows XP with IDE Mode

You will fail and encounter a blue screen while installing Windows XP, because it is not natively supported to be installed in the storage device with AHCI mode. If you still prefer to install Windows XP as the operating system, please change the BIOS item as below.

1. Refer to BIOS SETUP section to access BIOS.
2. Go to Advanced → SATA Mode.
3. Set the SATA Mode to IDE mode.
4. Go to Save & Exit → Save Changes and Reboot.
5. Install the Windows XP operating system.